

CLAIMS

1. A vaccine composition comprising isolated inverted microsomes from an animal cell, or membrane fragments thereof, in association with an externally disposed peptide antigen and a protein of the Major Histocompatibility Complex (MHC).
5
2. A composition as claimed in claim 1, in which the microsome is from the endoplasmic reticulum of the cell.
- 10 3. A composition as claimed in claim 1 or claim 2, in which the protein of the MHC is from a heterologous source with respect to the cell from which the microsomes are obtained.
- 15 4. A composition as claimed in any preceding claim, in which the composition additionally comprises one or more co-stimulatory molecules.
5. A composition as claimed in claim 4, in which the co-stimulatory molecules are selected from the group consisting of B7 and IL-2
- 20 6. A composition as claimed in any preceding claim, in which the antigen is from a viral, bacterial, yeast, fungal, or protozoan origin.
7. A composition as claimed in any preceding claim, in which the antigen is an auto-antigen
25
8. A composition as claimed in claim 6, in which the antigen is of neoplastic cell or cell of a cancer tumour, or a normal self-protein.
9. A composition as claimed in claim 8, in which the neoplastic cell or cancer
30 cell tumour is from a melanoma, lung adenocarcinoma, colon cancer, breast cancer or leukemia cell.

10. A composition as defined in any one of claims 1 to 9 for use in medicine.
11. A method of treatment or prophylaxis of a subject suffering from a disease or condition, comprising the step of administering to the subject a vaccine as defined in
5 any one of claims 1 to 9 to treat said disease or condition.
12. The use of a composition as defined in any one of claims 1 to 9 in the preparation of a vaccine for the prophylaxis or treatment of a disease condition.
- 10 13. A use as claimed in claim 12, in which the disease is an infection caused by a virus, bacterium, yeast, fungus or protozoan.
14. A use as claimed in claim 12, in which the disease is cancer.
- 15 15 A use as claimed in claim 14, in which the cancer is melanoma, lung adenocarcinoma, colon cancer, breast cancer, or leukemia.
16. A use as claimed in claim 12, in which the disease is an autoimmune condition.
- 20 17 A use as claimed in claim 16, in which the autoimmune condition is Multiple Sclerosis, Rheumatoid arthritis or Systemic Lupus Eryhamatosus.
- 25 18. A process for the preparation of a vaccine composition as defined in any one of claims 1 to 9, the process comprising incubating a population of microsomes and an antigen in the presence of a nucleoside triphosphate, followed by processing to prepare inverted microsomes and formulating the resulting preparation in an physiological diluent and optionally an adjuvant.
- 30 19. A process as claimed in claim 18, in which the microsome is from the endoplasmic reticulum of the cell.

20. A process as claimed in claim 18, in which the protein of the MHC is from a heterologous source with respect to the cell from which the microsomes are obtained.
21. A process as claimed in claim 18, in which the protein of the MHC is from an autologous source with respect to the cell from which the microsomes are obtained.
22. A process as claimed in any one of claims 18 to 21, in which the composition additionally comprises one or more co-stimulatory molecules.
23. A process as claimed in claim 22, in which the co-stimulatory molecules are selected from the group consisting of B7 and IL-2.
24. A process as claimed in any one of claims 18 to 23, in which the antigen is from a viral, bacterial, yeast, fungal, or protozoan antigen.
25. A process as claimed in any one of claims 18 to 23, in which the antigen is an auto-antigen.
26. A process as claimed in any one of claims 18 to 23, in which the antigen is of neoplastic cell or cell of a cancer tumour, or a normal self-protein.
27. A process as claimed in claim 26, in which the neoplastic cell or cancer cell tumour is from a melanoma, lung adenocarcinoma, colon cancer, breast cancer or leukemia cell.
28. A kit of parts comprising a composition as defined in any one of claims 1 to 9 and one or more cytokines and/or adjuvants in sealed containers.
29. A kit of parts as claimed in claim 28, in which the cytokine is IL-2 or IFN γ .

30. A kit of parts comprising a composition as defined in any one of claims 1 to 9 and one or more cytokines and/or adjuvants for separate, subsequent or simultaneous administration to a subject.
- 5 31. A kit of parts as claimed in claim 30, in which the cytokine is IL-2 or $\text{IFN}\gamma$